

§ 58.30–40

paragraphs (c)(1) and (2) of this section provided the accumulators have been previously tested in accordance with paragraph (b) of this section and welded or brazed piping joints are not employed in the system. If welded or brazed joints are employed, the system shall be tested in accordance with the requirements of paragraphs (c)(1) and (2) of this section except that the accumulators may be isolated from the remainder of the system.

(d) Fluid power and control systems shall be purged with an inert gas or with the working fluid and all trapped air bled from the system prior to any shipboard testing. In no case shall air, oxygen, any flammable gas, or any flammable mixture of gases be used for testing fluid power systems.

(e) Fluid control systems, such as boiler combustion controls, containing components with internal parts, such as bellows or other sensing elements, which would be damaged by the test pressure prescribed in paragraphs (c)(1) and (2) of this section may be tested at the maximum allowable working pressure of the system. In addition, all fluid control systems may be tested using the system working fluid.

§ 58.30–40 Plans.

(a) Diagrammatic plans and lists of materials must be submitted for each of the fluid power and control systems listed in § 58.30–1(a) that is installed on the vessel. Plan submission must be in accordance with subpart 50.20 of this subchapter and must include the following:

- (1) The purpose of the system.
- (2) Its location on the vessel.
- (3) The maximum allowable working pressure.
- (4) The fluid used in the system.
- (5) The velocity of the fluid flow in the system.
- (6) Details of the system components in accordance with § 56.01–10(d) of this subchapter.

[CGD 73–254, 40 FR 40168, Sept. 2, 1975]

§ 58.30–50 Requirements for miscellaneous fluid power and control systems.

(a) All fluid power and control systems installed on a vessel, except those

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listed in § 58.30–1(a), must meet the following requirements:

(1) Diagrams of the system providing the information required by § 58.30–40(a)(1) through (4) must be submitted. These are not approved but are needed for records and for evaluation of the system in accordance with § 58.30–1(a)(14).

(2) The hydraulic fluid used in the system must comply with § 58.30–10.

(3) The installed system must be tested in accordance with § 58.30–35(c)(2).

(4) All pneumatic cylinders must comply with § 58.30–30.

(5) Additional plans may be required for “fail-safe” equipment and for cargo hatch systems with alternate means of operation.

[CGD 73–254, 40 FR 40168, Sept. 2, 1975]

Subpart 58.50—Independent Fuel Tanks

§ 58.50–1 General requirements.

(a) The regulations in this subpart contain requirements for independent fuel tanks.

(b) Passenger vessels exceeding 100 gross tons constructed prior to July 1, 1935, may carry gasoline as fuel not exceeding 40 gallons to supply the emergency electrical system. Passenger vessels exceeding 100 gross tons constructed on or after July 1, 1935, and all emergency systems converted on or after July 1, 1935, shall use fuel which has a flashpoint exceeding 110 °F. (PMCC) for internal combustion engine units. Such vessels shall carry a sufficient quantity of fuel to supply the emergency electrical system. Refer to § 112.05–5 of Subchapter J (Electrical Engineering), of this chapter.

(c) An outage of 2 percent shall be provided on all fuel tanks containing petroleum products.

[CGFR 68–82, 33 FR 18878, Dec. 18, 1968, as amended by CGD 73–254, 40 FR 40169, Sept. 2, 1975]

§ 58.50–5 Gasoline fuel tanks.

(a) *Construction.* (1) *Shape.* Tanks may be of either cylindrical or rectangular form, except that tanks for emergency electrical systems shall be of cylindrical form.

(2) *Materials and construction.* The material used and the minimum thickness allowed shall be as indicated in Table 58.50-5(a) except that consideration will be given to other materials which provide equivalent safety as indicated in § 58.50-15.

(3) *Prohibited types.* Tanks with flanged-up top edges that may trap and hold moisture shall not be used.

(4) *Openings.* Openings for fill, vent and fuel pipes, and openings for fuel level gages where used, shall be on the topmost surface of tanks. Tanks shall have no openings in bottoms, sides, or ends, except that an opening fitted with threaded plug or cap may be used for tank cleaning purposes.

TABLE 58.50-5(a)

Material	A.S.T.M. specification (latest edition) [see also § 58.03-1]	Thickness in inches and gage numbers ¹ vs. tank capacities for—		
		1-through 80-gallon tanks	More than 80- and not more than 150-gallon tanks	Over 150-gallon tanks ²
Aluminum ⁵	B 209, Alloy 5086 ⁶	0.250 (USSG 3)	0.250 (USSG 3)	0.250 (USSG 3).
Nickel-copper	B127, Hot rolled sheet or plate	0.037 (USSG 20) ³ ..	0.050 (USSG 18)	0.107 (USSG 12).
Copper-nickel	B122, Alloy No. 5	0.045 (AWG 17)	0.057 (AWG 15)	0.128 (AWG 8).
Copper	B152, Type ETP	0.057 (AWG 15)	0.080 (AWG 12)	0.182 (AWG 5).
Copper-silicon	B 96, alloys C65100 and C65500.	0.050 (AWG 16)	0.064 (AWG 14)	0.144 (AWG 7).
Steel or iron ⁴	0.0747 (MfgStd 14) ..	0.1046 (MfgStd 12) ..	0.179 (MfgStd 7).

¹ Gages used are U.S. standard "USSG" for nickel-copper; "AWG" for copper, copper-nickel and copper-silicon "MFR's STD" for steel.

² Tanks over 400 gallons shall be designed with a factor of safety of four on the ultimate strength of the material used with a design head of not less than 4 feet of liquid above the top of the tank.

³ Nickel-copper not less than 0.031 inch (USSG 22) may be used for tanks up to 30-gallon capacity.

⁴ Fuel tanks constructed of iron or steel, which is less than 3/16-inch thick shall be galvanized inside and outside by the hot dip process.

⁵ Anodic to most common metals. Avoid dissimilar metal contact with tank body.

⁶ And other alloys acceptable to the Commandant.

(5) *Joints.* All metallic tank joints shall be welded or brazed.

(6) *Fittings.* Nozzles, flanges, or other fittings for pipe connections shall be welded or brazed to the tank. The tank openings in way of pipe connections shall be properly reinforced where necessary. Where fuel level gages are used, the flange to which gage fittings are attached shall be welded or brazed to the tank. No tubular gage glasses or trycocks shall be fitted to the tanks.

(7) *Baffle plates.* All tanks exceeding 30 inches in any horizontal dimension shall be fitted with vertical baffle plates where necessary for strength or for control of excessive surge. In general, baffle plates installed at intervals not exceeding 30 inches will be considered as meeting this requirement.

(8) *Baffle plate details.* Baffle plates, where required, shall be of the same material and not less than the minimum thickness required in the tank walls and shall be connected to the tank walls by welding or brazing. Limber holes at the bottom and air holes

at the top of all baffles shall be provided.

(b) *Installation.* (1) Gasoline fuel tanks used for propulsion shall be located in water-tight compartments separate from, but adjacent to the engineroom or machinery space. Fuel tanks for auxiliaries shall be located on or above the weather deck outside of the engine housing or compartment and as close to the engine as practicable. All tanks shall be so installed as to provide a free circulation of air around the tanks.

(2) Cylindrical tanks with longitudinal seams shall be arranged horizontally where practicable so that such seams are located as near the top as possible.

(3) Fuel tanks shall be so installed as to permit examination, testing, or removal for cleaning.

(4) Fuel tanks shall be adequately supported and braced to prevent movement. Portable fuel tanks are not permitted.

(5) All fuel tanks shall be electrically bonded to the common ground.

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(c) *Testing.* (1) Prior to installation, tanks vented to atmosphere shall be tested to, and must withstand, a pressure of 5 pounds per square inch or 1½ times the maximum head to which they may be subjected in service, whichever is greater. A standpipe of 11½ feet in height attached to the tank may be filled with water to accomplish the 5 pounds per square inch test. Permanent deformation of the tank will not be cause for rejection unless accompanied by leakage.

(2) After installation of the fuel tank on a vessel the complete installation shall be tested in the presence of a marine inspector to a head not less than that to which the tank may be subjected in service. Fuel may be used as a testing medium.

(3) All tanks not vented to atmosphere shall be constructed and tested

in accordance with part 54 of this subchapter.

[CGFR 68-82, 33 FR 18878, Dec. 18, 1968, as amended by CGFR 72-59R, 37 FR 6190, Mar. 25, 1972; USCG-1999-5151, 64 FR 67180, Dec. 1, 1999]

§ 58.50-10 Diesel fuel tanks.

(a) *Construction.* (1) Tanks may be of either cylindrical or rectangular form.

(2) The materials used and the minimum thickness allowed in the construction of independent fuel tanks shall be as indicated in Table 58.50-10(a), except that consideration will be given to other materials which provide equivalent safety as indicated in § 58.50-15.

(3) Tanks with flanged-up top edges, that may trap and hold moisture, shall not be used.

TABLE 58.50-10(a)

Material	A.S.T.M. specification (latest edition) [see also § 58.03-1]	Thickness in inches and gage numbers ¹ vs. tank capacities for—		
		1- through 80-gallon tanks	More than 80- and not more than 150-gallon tanks	Over 150-gallon tanks ²
Aluminum ⁵	B209, Alloy 5086 ⁶	0.250 (USSG 3)	0.250 (USSG 3)	0.250 (USSG 3).
Nickel-copper	B127, Hot rolled sheet or plate	0.037 (USSG 20) ³ ...	0.050 (USSG 18)	0.107 (USSG 12).
Steel or iron ⁴	0.0747 (MfgStd 14) ..	0.1046 (MfgStd 12) ..	0.179 (MfgStd 7).

¹ Gages used are U.S. standard "USSG" for nickel-copper and "MfgStd" for steel or iron.

² Tanks over 400 gallons shall be designed with a factor of safety of four on the ultimate strength of the material used with design head of not less than 4 feet of liquid above the top of the tank.

³ Nickel-copper not less than 0.031 inch (USSG 22) may be used for tanks up to 30-gallon capacity.

⁴ For diesel tanks the steel or iron shall not be galvanized on the interior.

⁵ Anodic to most common metals. Avoid dissimilar metal contact with tank body.

⁶ And other alloys acceptable to the Commandant.

(4) Openings for fill and vent pipes must be on the topmost surface of a tank. There must be no openings in the bottom, sides, or ends of a tank except as follows:

(i) The opening for the fuel supply piping is not restricted to the top of the tank.

(ii) An opening fitted with threaded plug or cap may be used on the bottom of the tank for tank cleaning purposes.

(iii) Liquid level gages must penetrate at a point that is more than 2 inches from the bottom of the tank.

(5) All tank joints shall be welded.

(6) Nozzles, flanges, or other fittings for pipe connections shall be welded or brazed to the tank. The tank opening in way of pipe connections shall be properly reinforced where necessary. Where liquid level indicating devices

are attached to the tank, they shall be of heat resistant materials adequately protected from mechanical damage and provided at the tank connections with devices which will automatically close in the event of rupture of the gage or gage lines.

(7) All tanks exceeding 30 inches in any horizontal dimension shall be fitted with vertical baffle plates where necessary for strength or for control of excessive surge. In general, baffle plates installed at intervals not exceeding 30 inches will be considered as meeting this requirement.

(8) Baffle plates, where required, shall be of the same material and not less than the minimum thickness required in the tank walls and shall be connected to the tank walls by welding or brazing. Limber holes at the bottom